AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. (Currently Amended) A composite material which comprises:

(a) finely divided graphite platelets, wherein a precursor graphite has been expanded by heating in a microwave or radiofrequency applicator for a time up to 5 minutes ~~and at a power so as to have no significant remaining order between the platelets as seen by a x-ray diffraction pattern without a peak as with the precursor graphite due to aligned sheets and~~ to remove by boiling an expander chemical comprising a fuming inorganic oxy acid from the precursor graphite ~~in a microwave or radiofrequency wave applicator~~ so as to essentially remove the expander chemical and expand the precursor graphite perpendicular to a basal plane of the precursor graphite into a worm like shape as a result of the heating and then pulverized to produce the platelets, which platelets consist essentially of a distribution of

single platelets most of which are 1 μm or less in length; and

(b) a polymer having the graphite platelets dispersed therein.

2. (Currently Amended) A composite material which comprises:

(a) finely divided graphite platelets, wherein a precursor graphite has been expanded by heating in a microwave or radiofrequency applicator for a time up to 5 minutes ~~and at a power and for a time so as to have no significant remaining order between the platelets as seen by a x-ray diffraction pattern without a peak as with the precursor graphite due to aligned sheets and~~ to remove by boiling an expander chemical comprising a fuming inorganic oxy acid and an oxidizing agent from the precursor graphite ~~in a microwave or radiofrequency wave applicator~~ so as to essentially remove the expander chemical and expand the precursor graphite perpendicular to a basal plane of the precursor graphite into a worm like shape as a result of the heating and then pulverized to produce the platelets, which platelets are single

platelets most of which are 1 μm or less in length and have a thickness of about 30 nm or less; and

(b) a polymer having the graphite platelets uniformly dispersed therein, wherein the composite material contains up to about 50% by volume of the graphite platelets.

3. (Previously Presented) The composite material of Claims 1 or 2, wherein the graphite platelets are present in an amount so that composite material is electrically conductive.

4. (Original) The composite material of any one of Claims 1, 2 or 3 wherein the polymer is a thermoplastic or thermoset polymer.

Claims 5-6 (Cancelled)

7. (Original) The composite material of any one of Claims 1, 2 or 3 wherein the polymer and the expanded graphite have been heated together with a radiofrequency wave applicator.

8. (Original) The composite material of any one of Claims 1, 2, or 3 wherein the polymer is an epoxy resin.

9. (Cancelled)

10. (Original) The composite material of any one of Claims 1, or 2 or 3 wherein the polymer is thermoplastic and is selected from the group consisting of polyamides, proteins, polyesters, polyethers, polyurethanes, polysiloxanes, phenol-formaldehydes, urea-formaldehydes, melamine-formaldehydes, celluloses, polysulfides, polyacetals, polyethylene oxides, polycaprolactams, polycaprolactons, polylactides, polyimides, and polyolefins.

11. (Previously Presented) The composite material of any one of Claims 1, 2 or 3 which contains less than about 8% by weight of the graphite platelets.

12. (Currently Amended) A method for preparing a shaped composite which comprises:

(a) providing a mixture of finely divided

graphite platelets, wherein a precursor graphite has been expanded by heating in a microwave or radiofrequency applicator for a time up to 5 minutes ~~and at a power so as to have no significant remaining order between the platelets as seen by a x-ray diffraction pattern without a peak as with the precursor graphite due to aligned sheets and~~ to remove by boiling an expander chemical comprising a fuming inorganic oxy acid from the precursor graphite and expand the precursor graphite perpendicular to a basal plane of the precursor graphite into a worm like shape as a result of the heating ~~in a microwave or radiofrequency wave applicator~~ and then pulverized to produce the platelets, which platelets consist essentially of distribution of single platelets most of which are 1 μm or less in length and a polymer with the platelets dispersed therein; and

(b) forming the shaped composite material from the mixture.

13. (Currently Amended) A method for preparing a shaped composite material which comprises:

(a) providing a mixture of graphite platelets,

wherein a precursor graphite has been expanded by heating in a microwave or radiofrequency wave applicator for a time up to 5 minutes ~~and at a power so as to have no significant remaining order between the platelets as seen by a x-ray diffraction pattern without a peak as with the precursor graphite due to aligned sheets and~~ to remove by boiling an expander chemical comprising a fuming inorganic oxy acid and an oxidizing agent from the precursor graphite ~~in a microwave or radiofrequency wave applicator~~ so as to essentially remove the expander chemical and expand the precursor graphite perpendicular to a basal plane of the precursor graphite into a worm like shape as a result of the heating and then pulverized to produce the platelets, which particles consist essentially of single platelets most of which are 1 μm or less in length and have a thickness of about 30 nm or less and a polymer with the graphite platelets uniformly dispersed therein, wherein the composite material contains up to about 50% by volume of the graphite platelets;

(b) forming the shaped composite material from the mixture.

14. (Previously Presented) The method of Claims 12 or 13 wherein the graphite platelets are provided in the polymer in an amount sufficient to render the shaped composite electrically conductive.

15. (Original) The method of Claims 12 or 13 wherein the polymer is a thermoplastic or thermoset polymer.

Claims 16-18 (Cancelled)

19. (Previously Presented) The method of any one of Claims 12 or 13 wherein the polymer is a curable thermoset resin which is mixed with the graphite platelets and cured.

20. (Previously Presented) The method of Claims 12 or 13 wherein the shaped composite material contains less than 8% by weight of the graphite platelets.

21. (Cancelled)

22. (Currently Amended) In a catalytic conversion of an organic compound to hydrogen with a catalytic material deposited on a substrate, the improvement in the substrate which comprises a finely divided microwave or radiofrequency wave expanded precursor graphite which has been expanded by heating for a time up to 5 minutes ~~and at a power so as to have no significant remaining order between the platelets as seen by a x-ray diffraction pattern without a peak as with the precursor graphite due to aligned sheets and~~ to remove by boiling an expander chemical comprising a fuming inorganic oxy acid and an oxidizing agent from the precursor graphite and expand the precursor graphite perpendicular to a basal plane of the precursor graphite into a worm like shape as a result of the heating and has been pulverized to graphite platelets most of which are 1 μm or less in length.

23. (Currently Amended) A process for producing graphite platelets which comprises:

(a) expanding by heating in a radiofrequency wave or microwave applicator a precursor graphite intercalated with a chemical which expands upon heating

for a time up to 5 minutes ~~and at a power so as to have no significant remaining order between the platelets as seen by a x-ray diffraction pattern without a peak as with the precursor graphite due to aligned sheets and~~ to remove by boiling an expander chemical comprising a fuming inorganic oxy acid from the precursor graphite ~~in a radiofrequency wave or microwave applicator~~ so as to essentially remove residual amounts of the expander chemical and expand the precursor graphite perpendicular to a basal plane of the precursor graphite into a worm like shape as a result of the heating to produce an expanded graphite; and

(b) pulverizing the expanded graphite to produce the platelets that are essentially a distribution of individual platelets most of which are 1 μm or less in length.

Claim 24 (Cancelled)

25. (Previously Presented) The process of Claim 23 wherein the expanding is by the microwave applicator.

26. (Previously Presented) The composite material of Claim 1 wherein the expanded and pulverized graphite particles are grafted with acrylamide.

27. (Previously Presented) The method of Claim 12 wherein the expanded and pulverized graphite platelets are grafted with acrylamide.

28. (Previously Presented) The process of Claim 23 wherein the expanded and pulverized graphite platelets are grafted with acrylamide.

29. (Previously Presented) The composite material of Claims 1 or 2, wherein the precursor graphite has been expanded by heating at a power of 1040 Watts.

30. (Previously Presented) The method of Claims 12 or 13, wherein the precursor graphite has been expanded by heating at a power of 1040 Watts.

31. (Previously Presented) The catalytic conversion of Claim 22, wherein the precursor graphite of the substrate has been expanded by heating at a power of 1040 Watts.

32. (Previously Presented) The process of Claim 23, wherein the precursor graphite has been expanded by heating at a power of 1040 Watts.

33. (New) In a battery containing ions, the improvement in the anode which comprises a microwave or radiofrequency wave expanded precursor graphite which has been heated for a time up to 5 minutes to remove an expander chemical by boiling and to expand the precursor graphite perpendicular to a basal plane of the precursor graphite into a worm like shape as a result of the heating which has been pulverized to form graphite platelets having single platelets with a length less than about 200 microns and a thickness of less than about 0.1 microns.